Citation:

Peters R, Peters J, Warner J, Beckett N, Bulpitt C. Alcohol, dementia and cognitive decline in the elderly: a systematic review. *Age and Ageing*. 2008 Sep;37(5):505-12. Epub 2008 May 16.

PubMed ID: 18487267

Study Design:

Systematic Review / Meta-Analysis

Class:

M - Click here for explanation of classification scheme.

Research Design and Implementation Rating:

POSITIVE: See Research Design and Implementation Criteria Checklist below.

Research Purpose:

To evaluate the evidence for any relationship between incident cognitive decline or dementia in the elderly and alcohol consumption.

Inclusion Criteria:

- Longitudinal studies of subjects aged 65 and older
- Studies had to compare alcohol intake (yes, or defined dose) versus none (no, or baseline amount) against a primary outcome of incident dementia / cognitive decline

Exclusion Criteria:

- Case studies, letters, consensus opinion from conferences and expert opinions or editorials were not included
- Studies with inadequate definition of the outcomes of interest were also excluded

Description of Study Protocol:

Recruitment

- The databases Medline, Embase and Psychinfo were searched for English language publications relating to human populations and occurring between 1995 and March 2006
- Search terms included: 'alcohol', 'wine', 'beer', 'dementia or VaD', 'multi-infarct dementia', 'AD', 'cognitive impairment' and 'cognitive decline'
- When available, standard search categories were also used that matched the above terms
- No hand searching was carried out

Design: Systematic review / meta-analysis

Blinding used (if applicable): no studies employed blinding

Intervention (if applicable): not applicable

Statistical Analysis

- Quality was assessed using standard criteria assessing key factors including appropriate design, recruitment, analysis and provision of suitable information relating to key aspects of the study
- Random effects model was used and tests for heterogeneity of the data were carried out

Data Collection Summary:

Timing of Measurements

Follow-up length varied from 1 to 25 years with most studies having more than 5 years of follow-up.

Dependent Variables

- Dementia
- Cognitive decline

Independent Variables

- Alcohol consumption

Control Variables

Description of Actual Data Sample:

Initial N: 94 papers were obtained for further review. 26 papers reporting on 23 studies were included.

Attrition (final N): 23 studies were identified (20 epidemiological cohort, three retrospective matched case-control nested in a cohort).

Age: all subjects were aged 65 and older

Ethnicity: not reported

Other relevant demographics:

Anthropometrics

Location: Vast majority of studies were from Europe, particularly northern Europe and North America/Canada.

Summary of Results:

Key Findings

- In older people, small to moderate amounts of alcohol consumption are associated with reduced incidence of dementia and Alzheimer's disease
- Meta-analyses suggest that small amounts of alcohol may be protective against dementia (random effects model, risk ratio = 0.63, 95% confidence interval: 0.53 - 0.75) and Alzheimer's disease (risk ratio = 0.57, 95% confidence interval: 0.44 - 0.74) but not for vascular dementia (risk ratio = 0.82, 95% confidence interval: 0.50 - 1.35) or cognitive decline (risk ratio = 0.89, 95% confidence interval: 0.67 - 1.17).
- The evidence is strongest for wine consumption but not conclusive

Other Findings

- However, studies varied, with differing lengths of follow-up, measurement of alcohol consumption, inclusion of true abstainers and assessment of potential confounders
- Ten studies reported other differences between drinkers and non-drinkers, with drinkers more likely to be current/ex-smokers, have higher income, educational/occupational attainment, live with others, be male, have no history of cardiovascular disease, diabetes, hypertension and depression, be Caucasian, younger, have lower or higher BMI, use psychotropic drugs, and for women, to have used hormone replacement treatment in the past, and have better subjective health scores (men and women).

Author Conclusion:

Due to the heterogeneity in the data, these findings should be interpreted with caution. However, there is some evidence to suggest that limited alcohol intake in earlier adult life may be protective against incident dementia later.

Reviewer Comments:

Studies varied, with differing lengths of follow-up, measurement of alcohol consumption, inclusion of true abstainers and assessment of potential confounders. Publication bias may have resulted in negative studies not being published, although this was not indicated by funnel plots and bias indicators were non-significant.

Research Design and Implementation Criteria Checklist: Review Articles

Relevance Questions		
1.	Will the answer if true, have a direct bearing on the health of patients?	Yes
2.	Is the outcome or topic something that patients/clients/population groups would care about?	Yes
3.	Is the problem addressed in the review one that is relevant to nutrition or dietetics practice?	Yes
4.	Will the information, if true, require a change in practice?	Yes

Validity Questions

1.	Was the question for the review clearly focused and appropriate?	Yes
2.	Was the search strategy used to locate relevant studies comprehensive? Were the databases searched and the search termsused described?	Yes
3.	Were explicit methods used to select studies to include in the review? Were inclusion/exclusion criteria specified and appropriate? Were selection methods unbiased?	Yes
4.	Was there an appraisal of the quality and validity of studies included in the review? Were appraisal methods specified, appropriate, and reproducible?	Yes
5.	Were specific treatments/interventions/exposures described? Were treatments similar enough to be combined?	Yes
6.	Was the outcome of interest clearly indicated? Were other potential harms and benefits considered?	Yes
7.	Were processes for data abstraction, synthesis, and analysis described? Were they applied consistently across studies and groups? Was there appropriate use of qualitative and/or quantitative synthesis? Was variation in findings among studies analyzed? Were heterogeneity issued considered? If data from studies were aggregated for meta-analysis, was the procedure described?	Yes
8.	Are the results clearly presented in narrative and/or quantitative terms? If summary statistics are used, are levels of significance and/or confidence intervals included?	Yes
9.	Are conclusions supported by results with biases and limitations taken into consideration? Are limitations of the review identified and discussed?	Yes
10.	Was bias due to the review's funding or sponsorship unlikely?	Yes